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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/992,699

11/14/2001

Johan Samuel Van Den Brink

NL 000606

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03/25/2004

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

VARGAS, DIXOMARA

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/992,699

**Applicant(s)**

VAN DEN BRINK ET AL.

**Examiner**

Dixomara Vargas

**Art Unit**

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 1, 2 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al. (US 6,424,153).

With respect to claims 1, 8 and 9, Liu discloses a magnetic resonance imaging method comprising the steps of:

a) Generating magnetic resonance signals, having a signal amplitudes and phases by

(Abstract):

i) Producing a uniform magnetic field utilizing a main coil system comprising a plurality of main coils to produce said uniform magnetic fields (Columns 2-3, lines 66-67 and 1-3 respectively; Figure 1, #12);

ii) Generating RF excitation pulses utilizing a transmission coil to generate said RF excitation pulses, such that said RF excitation pulses excite nuclear spins in an object that is to be imaged, which is residing within said uniform magnetic field (Column 3, lines 14-39, Figure 1, #26);

iii) Terminating said RF excitation pulses to relax said nuclear spins and thereby emit magnetic resonance signals (Column 3, lines 14-39, Figure 1, #26);

b) Generating temporary magnetic gradient fields, utilizing a plurality of gradient coils to generate said temporary magnetic gradient fields (Column 3, lines 5-14; Figure 1, #22);

c) Superposing said temporary magnetic gradient fields on said uniform magnetic field to provide spatial encoding of the magnetic resonance signals being emitted (Column 3, lines 5-14; Figures 1-2);

d) Receiving said spatially encoded magnetic resonance signals, utilizing a receiving coil (Column 3, lines 14-39, Figure 1);

e) Correcting said signal amplitudes of said spatially encoded magnetic resonance signals, or quantities calculated from said spatially encoded signal amplitudes, for deviations (Column 5, lines 44-67) that are due to spatial non-linearities of said temporary magnetic gradient fields, utilizing correction means, to produce corrected MR signals (Column 1, lines 38-63; Column 5, lines 5-20; Figure 1, #70); and

f) Outputting said corrected MR signals, utilizing output means, to form a magnetic resonance image (Columns 6, lines 6-14).

3. With respect to claim 2, Liu discloses the step of correcting the signal amplitudes of the magnetic resonance signals is perform based on spatial and temporal characteristics of electrical current distribution through said gradient coils (Column 3, lines 10-14; Figure 1, #40).

4. With respect to claim 7, Liu discloses the step wherein the MRI method is flow-related and a flow sensitive parameter is a quantity calculated from said amplitudes of said MR signals,

Art Unit: 2859

which is corrected for deviations that are due to spatial non-linearities of the temporary magnetic gradient fields (Column 1, lines 38-63; Column 5, lines 5-20 and 44-67).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (US 6,424,153) in view of McKinnon (US 6,078,176).

With respect to claim 3, Liu discloses the claimed invention as stated above in paragraph 2 except for the step wherein said magnetic resonance signals are diffusion-weighted. However, McKinnon discloses the generation of diffusion-weighted magnetic resonance signals (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use McKinnon's teachings of the diffusion-weighted magnetic resonance signals

Art Unit: 2859

with Liu's magnetic resonance imaging method for the purpose of providing information depicting molecular displacements comparable to cell dimensions to obtain physiological information by a conventional imaging modality for example, for making diagnoses of diseases in the brain, infarcts, and for characterizing brain tumors.

8. With respect to claim 4, Liu discloses the step wherein said temporary magnetic gradient fields include a bipolar gradient pair (Figure 2, #142).

9. With respect to claim 5, Liu discloses the step wherein said temporary gradient fields include a pair of gradient pulses that have the same polarity and are separated by a refocusing pulse (Figure 2, #132).

10. With respect to claim 6, see rejection of claims 1 and 3 above.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited in the PTO 892 discloses MRI systems and methods with non-linear gradients wherein the amplitude is corrected due to said gradients.

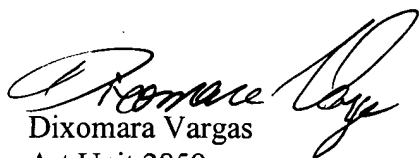
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252.

The examiner can normally be reached on 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2859

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dixomara Vargas

Art Unit 2859

March 12, 2004



Diego Gutierrez

Supervisory Patent Examiner

Technology Center 2800

**CHRISTOPHER W. FULTON**  
**PRIMARY EXAMINER**